

supplying a reactive gas into said chamber at a same flow rate with supplying said hydrogen gas; and

forming a semiconductor film comprising amorphous silicon in said chamber by decomposing said reactive gas using said radio frequency energy,

wherein the step of supplying said hydrogen gas is discontinued with a start of the step of supplying said reactive gas [so as not to change a total amount of said reactive gas and said hydrogen gas in said chamber] and throughout the forming of said semiconductor film comprising amorphous silicon.

24. (Amended) A film forming method comprising:

forming [a silicon oxide] an under film on a substrate [by plasma chemical vapor deposition];

supplying [a] hydrogen gas into a chamber;

supplying radio frequency energy in said chamber to generate plasma from said hydrogen gas by radio frequency discharge;

supplying a reactive gas into said chamber at a same flow rate with supplying said hydrogen gas; and

forming a semiconductor film comprising amorphous silicon on said [silicon oxide] under film in said chamber by decomposing said reactive gas using said radio frequency energy,

wherein the step of supplying said hydrogen gas is discontinued with a start of the step of supplying said reactive gas [so as not to change a total amount of said reactive gas and said hydrogen gas in said chamber] and throughout the step of forming of said semiconductor film comprising amorphous silicon.

25. (Amended) A film forming method comprising:

forming a semiconductor film comprising amorphous silicon in a chamber by decomposing a reactive gas using radio frequency energy;

supplying [a] hydrogen gas into said chamber at a same flow rate with supplying said reactive gas; and

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supplying radio frequency energy to said hydrogen gas to generate plasma from said hydrogen gas in said chamber by radio frequency discharge,

wherein said reactive gas is supplied into said chamber during the step of forming of said semiconductor film comprising amorphous silicon before the step of supplying said hydrogen gas, and the step of supplying said hydrogen gas is started with discontinuing a supply of said reactive gas [so as not to change a total amount of said reactive gas and said hydrogen gas in said chamber].

26. (Amended) A film forming method comprising:

supplying a discharge gas into a chamber;

supplying radio frequency energy in said chamber to generate plasma from said discharge gas by radio frequency discharge;

supplying a reactive gas into said chamber at a same flow rate with supplying said discharge gas; and

forming a semiconductor film comprising amorphous silicon in said chamber by decomposing said reactive gas using said radio frequency energy,

wherein the step of supplying said discharge gas is discontinued with a start of the step of supplying said reactive gas [so as not to change a total amount of said reactive gas and said discharge gas in said chamber] and throughout the step of forming of said semiconductor film comprising amorphous silicon, and

wherein said discharge gas does not contribute to film formation.

27. (Amended) A film forming method comprising:

forming a semiconductor film comprising amorphous silicon in a chamber by decomposing a reactive gas using radio frequency energy;

supplying a discharge gas into said chamber at a same flow rate with supplying said reactive gas; and

supplying radio frequency energy to said discharge gas to generate plasma from said discharge gas in said chamber by radio frequency discharge.

wherein said reactive gas is supplied into said chamber during the step of forming of said semiconductor film comprising amorphous silicon before the step of supplying a discharge gas, and the step of supplying said discharge gas is started with discontinuing supplying said reactive gas [so as not to change a total amount of said reactive gas and said discharge gas in said chamber], and

wherein said discharge gas does not contribute to film formation.

28. (Amended) A film forming method for forming a plurality of different films [in a multilayer] in a multichamber apparatus comprising a plurality of chambers coupled to each other, said method comprising:

supplying [a] hydrogen gas into one of said chambers;

supplying radio frequency energy in said one of said chambers to generate plasma from said hydrogen gas by radio frequency discharge;

supplying a reactive gas into said one of said chambers at a same flow rate with supplying said hydrogen gas; and

forming a semiconductor film comprising amorphous silicon as one of said different films in said one of said chambers by decomposing said reactive gas using said radio frequency energy therein,

wherein the step of supplying said hydrogen gas is discontinued with a start of the step of supplying said reactive gas [so as not to change a total amount of said reactive gas and said hydrogen gas in said chamber] and throughout the step of forming of said semiconductor film comprising amorphous silicon, and wherein each of said chambers forms at least one of said plurality of different films.

29. (Amended) A film forming method for forming a plurality of different films [in a multilayer] in a multichamber apparatus comprising a plurality of chambers coupled to each other, said method comprising:

forming a semiconductor film comprising amorphous silicon as one of said different films in one of said chambers by decomposing a reactive gas using radio frequency energy;

supplying [a] hydrogen gas into said one of said chambers at a same flow rate with supplying said reactive gas; and

supplying radio frequency energy to said hydrogen gas to generate plasma from said hydrogen gas in said one of said chambers by radio frequency discharge,

wherein said reactive gas is supplied into said chamber during the step of forming of said semiconductor film comprising amorphous silicon before the step of supplying said hydrogen gas, and the step of supplying said hydrogen gas is started with discontinuing the supplying of said reactive gas [so as not to change a total amount of said reactive gas and said hydrogen gas in said chamber], and wherein each of said chambers forms at least one of said plurality of different films.

31. (Amended) A method according to claim 23 wherein said semiconductor film comprising amorphous silicon is crystallized by a laser light, and [the] a crystallized semiconductor film is used for fabricating a thin film transistor.

32. (Amended) A method according to claim 24 wherein said semiconductor film comprising amorphous silicon is crystallized by a laser light, and [the] a crystallized semiconductor film is used for fabricating a thin film transistor.

33. (Amended) A method according to claim 25 wherein said semiconductor film comprising amorphous silicon is crystallized by a laser light, and [the] a crystallized semiconductor film is used for fabricating a thin film transistor.

34. (Amended) A method according to claim 26 wherein said semiconductor film comprising amorphous silicon is crystallized by a laser light, and [the] a crystallized semiconductor film is used for fabricating a thin film transistor.

35. (Amended) A method according to claim 27 wherein said semiconductor film comprising amorphous silicon is crystallized by a laser light, and [the] a crystallized semiconductor film is used for fabricating a thin film transistor.

36. (Amended) A method according to claim 28 wherein said semiconductor film comprising amorphous silicon is crystallized by a laser light, and [the] a crystallized semiconductor film is used for fabricating a thin film transistor.

37. (Amended) A method according to claim 29 wherein said semiconductor film comprising amorphous silicon is crystallized by a laser light, and [the] a crystallized semiconductor film is used for fabricating a thin film transistor.

58. (Amended) A film forming method for fabricating a thin film transistor comprising a semiconductor layer having at least a channel formation region, a gate insulating film adjacent to said semiconductor layer, and a gate electrode adjacent to said gate insulating film, said method comprising the steps of:

supplying a discharge gas into a chamber;

supplying radio frequency energy in said chamber to generate plasma from said discharge gas by radio frequency discharge;

supplying a reactive gas into said chamber at a same flow rate with supplying said discharge gas; and

forming said gate insulating film over an insulating substrate in said chamber by decomposing said reactive gas using said radio frequency energy,

wherein said discharge gas is not supplied during the step of supplying said reactive gas and throughout the forming of said gate insulating film.

60. (Amended) A method according to claim 58 wherein said gate insulating film [is made of] comprises silicon oxide.

61. (Amended) A method according to claim 58 wherein said discharge gas [is] comprises hydrogen.

62. (Amended) A method according to claim 58 wherein said reactive gas [is] comprises silane.

64. (Amended) A film forming method for fabricating a thin film transistor comprising a semiconductor layer having at least a channel formation region, a gate insulating film adjacent to said semiconductor layer, and a gate electrode adjacent to said gate insulating film, said method comprising the steps of:

forming said gate insulating film over an insulating substrate in a chamber by decomposing a reactive gas using radio frequency energy;

supplying a discharge gas into said chamber; and

supplying radio frequency energy to said [hydrogen] discharge gas to generate plasma from said [hydrogen] discharge gas in said chamber by radio frequency discharge at a same flow rate with supplying said reactive gas,

wherein said reactive gas is supplied into said chamber during the step of forming of said gate insulating film before the step of supplying said discharge gas, and said reactive gas is not supplied during the step of supplying said discharge gas.

66. (Amended) A method according to claim 64 wherein said gate insulating film [is made of] comprises silicon oxide.

67. (Amended) A method according to claim 64 wherein said discharge gas [is] comprises hydrogen.

68. (Amended) A method according to claim 64 wherein said reactive gas [is] comprises silane.

70. (Amended) A film forming method for fabricating a thin film transistor comprising a semiconductor layer having at least a channel formation region, a gate insulating film adjacent to said semiconductor layer, and a gate electrode adjacent to said gate insulating film, said method comprising the steps of:

supplying a discharge gas into a chamber;

supplying radio frequency energy in said chamber to generate plasma from said discharge gas by radio frequency discharge;

supplying a reactive gas into said chamber at a same flow rate with supplying said discharge gas; and

forming said semiconductor layer comprising amorphous silicon over an insulating substrate in said chamber by decomposing said reactive gas using said radio frequency energy,

wherein said discharge gas is not supplied during the step of supplying said reactive gas and throughout the forming of said semiconductor layer comprising amorphous silicon.

72. (Amended) A method according to claim 70 wherein said discharge gas [is] comprises hydrogen.

73. (Amended) A method according to claim 70 wherein said reactive gas [is] comprises silane.

76. (Amended) A film forming method for fabricating a thin film transistor comprising a semiconductor layer having at least a channel formation region, a gate insulating film adjacent to said semiconductor layer, and a gate electrode adjacent to said gate insulating film, said method comprising the steps of:

forming said semiconductor layer comprising amorphous silicon over an insulating substrate in a chamber by decomposing a reactive gas using radio frequency energy;

supplying a discharge gas into said chamber at a same flow rate with supplying said reactive gas; and

supplying radio frequency energy to said [hydrogen] discharge gas to generate plasma from said [hydrogen] discharge gas in said chamber by radio frequency discharge,

wherein said reactive gas is supplied into said chamber during the step of forming of said semiconductor layer comprising amorphous silicon before the step of supplying said discharge gas, and said reactive gas is not supplied during the step of supplying said discharge gas.

78. (Amended) A method according to claim 76 wherein said discharge gas [is] comprises hydrogen.

79. (Amended) A method according to claim 76 wherein said reactive gas [is] comprises silane.

82. (Amended) A film forming method for fabricating a thin film transistor comprising[,] a semiconductor layer having at least a channel formation region, a gate insulating film on said semiconductor layer, and a gate electrode adjacent on said gate insulating film, said method comprising the steps of:

supplying a discharge gas into a chamber;

supplying radio frequency energy in said chamber to generate plasma from said discharge gas by radio frequency discharge;

supplying a reactive gas into said chamber at a same flow rate with supplying said discharge gas; and

forming an under film on an insulating substrate in said chamber by decomposing said reactive gas using said radio frequency energy,

wherein said discharge gas is not supplied during the step of supplying said reactive gas and throughout the forming of said under film.

83. (Amended) A method according to claim 82 wherein said under film [is made of] comprises silicon oxide.

84. (Amended) A method according to claim 82 wherein said discharge gas [is] comprises hydrogen.

85. (Amended) A method according to claim 82 wherein said reactive gas [is] comprises silane.

87. (Amended) A film forming method for fabricating a thin film transistor comprising[,] a semiconductor layer having at least a channel formation region, a gate insulating film on said semiconductor layer, and a gate electrode on said gate insulating film, said method comprising the steps of:

forming an under film on an insulating substrate in a chamber by decomposing a reactive gas using radio frequency energy;

supplying a discharge gas into said chamber at a same flow rate with supplying said reactive gas; and

supplying radio frequency energy to said [hydrogen] discharge gas to generate plasma from said [hydrogen] discharge gas in said chamber by radio frequency discharge,

wherein said reactive gas is supplied into said chamber during the step of forming of said under film before the step of supplying said discharge gas, and said reactive gas is not supplied during the step of supplying said discharge gas.

88. (Amended) A method according to claim 87 wherein said under film [is made of] comprises silicon oxide.

89. (Amended) A method according to claim 87 wherein said discharge gas [is] comprises hydrogen.

90. (Amended) A method according to claim 87 wherein said reactive gas [is] comprises silane.

92. (Amended) A film forming method for fabricating a thin film transistor comprising a semiconductor layer having at least a channel formation region, a gate insulating film adjacent to said semiconductor layer, and a gate electrode adjacent to said gate insulating film, said method comprising the steps of:

supplying a first discharge gas into a first chamber;

supplying first radio frequency energy in said first chamber to generate plasma from said first discharge gas by radio frequency discharge;

supplying a first reactive gas into said first chamber at a same flow rate with
supplying said first discharge gas; and

forming said semiconductor layer comprising an amorphous silicon [and said gate
insulating film] over an insulating substrate in said first chamber by decomposing said first
reactive gas using said first radio frequency energy,

supplying a second discharge gas into a second chamber;

supplying second radio frequency energy in said second chamber to generate
plasma from said second discharge gas by radio frequency discharge;

supplying a second reactive gas into said second chamber at a same flow rate with
supplying said second discharge gas; and

forming said gate insulating film over said insulating substrate in said second
chamber by decomposing said second reactive gas using said second radio frequency
energy.

wherein said first and said second discharge [gas is] gases are not supplied during
the step of supplying said first and said second reactive [gas] gases and throughout the
forming of said semiconductor layer and said gate insulating film.

94. (Amended) A method according to claim 92 wherein said first and said
second discharge [gas is] gases comprise hydrogen.

95. (Amended) A method according to claim 92 wherein said first and said
second reactive [gas is] gases comprise silane.

96. (Amended) A method according to claim 92 wherein a period of time
from the start of said radio frequency discharge to the start of the supply of said first or said
second reactive gas is 10 seconds.

98. (Amended) A film forming method for fabricating a thin film transistor
comprising a semiconductor layer having at least a channel formation region, a gate
insulating film adjacent to said semiconductor layer, and a gate electrode adjacent to said
gate insulating film, said method comprising the steps of:

forming said semiconductor layer [and said gate insulating film] over an insulating substrate in a first chamber by decomposing a first reactive gas using first radio frequency energy;

supplying a first discharge gas into said first chamber at a same flow rate with supplying said first reactive gas; and

supplying radio frequency energy to said first discharge gas to generate plasma from said first discharge gas in said first chamber by radio frequency discharge.

forming said gate insulating film over said insulating substrate in a second chamber by decomposing a second reactive gas using second radio frequency energy;

supplying a second discharge gas into said second chamber at a same flow rate with supplying said second reactive gas; and

supplying radio frequency energy to said second discharge gas to generate plasma from said second discharge gas in said second chamber by radio frequency discharge.

wherein said first and said second reactive [gas is] gases are supplied into said first and said second [chamber] chambers during the step of forming of said semiconductor layer and said gate insulating film before the step of supplying said first and said second discharge [gas] gases, and said first and said second reactive [gas is] gases are not supplied during the step of supplying said first and said second discharge [gas] gases.

100. (Amended) A method according to claim 98 wherein said first and said second discharge [gas is] gases comprise hydrogen.

101. (Amended) A method according to claim 98 wherein said first and said second reactive [gas is] gases comprise silane.

102. (Amended) A method according to claim 98 wherein said radio frequency discharge is continued for 15 seconds after supplying said first or said second discharge gas.